ABSTRACT OF THE DISCLOSURE

A silicon nitride film and a silicon oxynitride film as an antireflection coating are successively formed on a silicon substrate. The silicon nitride film and the silicon oxynitride film are patterned. A reduction treatment for reducing the amount of oxygen atoms is performed on the silicon oxynitride film. The silicon oxynitride film after the reduction treatment and the silicon nitride film are used as a mask to etch the silicon substrate, thereby forming a trench in a main surface of the silicon substrate. This trench is filled with an insulating film.